

soft layer on a surface of said film, said soft layer having a hardness less than said copper or silver film, ~~said slurry adapted to polish said soft layer using either no particles or particles which are softer than said copper or silver film.~~

2. (Original) The slurry of claim 1, wherein said soft layer comprises a copper or silver halide.

3. (Original) The slurry of claim 2, wherein said copper or silver halide comprises copper iodide (CuI) or silver iodide (AgI).

4. (Currently amended) The slurry of claim 1, wherein said slurry includes a plurality of [[said]] soft particles.

5. (Currently amended) The slurry of claim 4, wherein said plurality of soft particles comprise polymer or nano-porous particles.

6. (Currently amended) The slurry of claim 5, wherein said plurality of soft particles comprise at least one selected from the group consisting of polystyrene, polytetrafluoroethylene, polyamide, silver and porous silica.

7. (Currently amended) The slurry of claim 1, wherein said solution further comprises at least one selected from the group consisting of iodine, bromine, fluorine, HI, KIO₃, sulfuric acid, hydrochloric acid and carbonic acid.

8. (Currently amended) The slurry of claim 1, wherein a pH of said slurry is from [[1]] 2 to [[13]] 9.

9. (Original) The slurry of claim 1, further comprising at least one etchant for removing a copper or silver oxide or a carbon containing film disposed on or in contact with said copper or silver film.

10. (Original) The slurry of claim 9, wherein said etchant comprises an acid.

11. (Original) The slurry of claim 10, wherein said acid comprises at least one selected from the group consisting of nitric acid, acetic acid, sulfuric acid, hydroxy acid, hydrochloric acid, hydrofluoric acid, carboxylic acid, citric acid, malic acid, malonic acid, succinic acid, phtalic acid, tartaric acid, dihydroxysuccinic acid, lactic acid, malic acid, fumaric acid, adipic acid, glutaric acid, oxalic acid, benzoic acid, propionic acid, butyric acid, EDTA and valeric acid.

12. (Original) The slurry of claim 1, wherein said soft layer is at least one selected from the group consisting of copper or silver bromide, copper or silver fluoride, copper or silver chloride, copper or silver carbonate, copper or silver sulfate and copper or silver nitrate.

13. (Original) The slurry of claim 1, further comprising at least one passivating additive.

14. (Original) The slurry of claim 13, wherein said passivating additive is at least one selected from the group consisting of BTA and TTA.

15. (Original) The slurry of claim 1, further comprising at least one salt.

16. (Original) The slurry of claim 15, wherein said salt is at least one selected from the group consisting of KI, KBr, KCO₃, NH₄I, KCl and NH₄Cl.

17. (Original) The slurry of claim 1, further comprising at least one chelating agent.

18. (Original) The slurry of claim 17, wherein said chelating agent is at least one selected from the group consisting of EDTA, en, acac, phen and oxalate ions.

19. (Original) The slurry of claim 1, wherein a selectivity of a CMP process using said slurry is at least 100 for removal of said copper or silver film relative to a layer comprising tantalum or titanium.

20. (Original) The slurry of claim 19, wherein said selectivity is at least 500.

21. (Currently amended) The slurry of claim 1, wherein a selectivity of a CMP process using said slurry is at least 50 for removal of said copper or silver film relative to a silicon dioxide, alumina or a [[low K]] dielectric layer which has a dielectric constant less than silicon dioxide.

22. (Original) The slurry of claim 21, wherein said selectivity is at least 80.

23. (Original) The slurry of claim 21, wherein said selectivity is at least 500.

24. (Original) The slurry of claim 1, further comprising at least one surfactant.

25. (Original) The slurry of claim 24, wherein said surfactant is at least one selected from the group consisting of non-ionic, anionic, cationic and zwitterionic surfactants.

26. (Currently amended) The slurry of claim 25, wherein said surfactant is at least one selected from the group consisting of SDS, SAS, CTAB, ~~TRITON X-100®~~ octylphenol ethylene oxide condensate ~~AND TWEEN 80®~~ and polyoxyethylene sorbitan monooleate, ~~KETJENLUBE 522®~~ a water soluble copolymer of an average molecular weight of approximately 15,000 consisting of a-olefins and dicarboxylic acids, partially esterified with an ethoxilated alcohol, and CTAC.

27. (Original) The slurry of claim 1, further comprising at least one polymer additive.

28. (Original) The slurry of claim 27, wherein said polymer additive is at least one selected from the group consisting of polyethylene oxide (PEO), polyacrylic acid (PAA), polyacryamide (PAM), polyvinylalcohol (PVA) and polyalkylamine (PAH).

29. (Original) The slurry of claim 1, wherein said slurry is a non-aqueous slurry.

30. (Original) The slurry of claim 1, wherein a thickness of said soft layer is less than about 1 μ m.

31. (Original) The slurry of claim 1, wherein a thickness of said soft layer is less than about 0.2 μm .

32. (Original) The slurry of claim 1, wherein said soft layer is substantially insoluble in said slurry.

33. (Currently amended) A slurry for chemical mechanical polishing (CMP) of a copper or silver containing film, comprising:

a solution providing at least one reagent including at least species selected from the group consisting of a polyhalide ion, I_2 , Br_2 and F_2 for reacting with said copper or silver film to form a soft layer on a surface of said film, said soft layer having a hardness less than said copper or silver film, ~~said slurry adapted to polish said soft layer using a plurality of abrasive particles being harder than said copper or silver film, ; and~~

~~a concentration of said abrasive particles [[being]] in a concentration of less than 1% by weight.~~

34. (Original) The slurry of claim 33, wherein said concentration of said abrasive particles is less than approximately 0.1% by weight.

35. (Original) The slurry of claim 33, wherein said abrasive particles comprise at least one selected from the group consisting of silica, alumina, zirconia, carbon and yttria.

36. (Currently amended) A slurry for chemical mechanical polishing (CMP) of a structure including a copper or silver film and a silicon dioxide, alumina or a [[low K]] dielectric

film which has a dielectric constant less than silicon dioxide, wherein said slurry includes at least one species selected from the group consisting of a polyhalide ion, I₂, Br₂ and F₂ and provides a selectivity for a CMP process of at least 200 for removal of said copper or silver film relative to said dielectric film.

37. (Currently amended) A slurry for chemical mechanical polishing (CMP) of a structure including a copper or silver film and a titanium or tantalum based barrier film, including at least one species selected from the group consisting of a polyhalide ion, I₂, Br₂ and F₂, wherein said slurry provides a selectivity for a CMP process of at least approximately 200 for removal of said copper or silver film relative to said barrier film.

38. (Withdrawn) A method for chemical mechanical polishing (CMP) a copper or silver containing film, comprising the steps of:

providing a slurry, said slurry providing at least one reagent for reacting with said copper or silver film to form a soft layer on a surface of said copper or silver film, said soft layer having a hardness less than said copper or silver film, said slurry consisting of either no particles or particles which are softer than said copper or silver film,

applying said slurry solution to said copper or silver film to form said soft layer, and removing said soft layer using a polishing pad.

39. (Withdrawn) A method for chemical mechanical polishing (CMP) a copper or silver containing film, comprising the steps of:

providing a slurry, said slurry providing at least one reagent for reacting with said copper or silver film to form a soft layer on a surface of said copper or silver film, said soft layer having

a hardness less than said copper or silver film, said slurry consisting of either no particles or particles which are softer than said copper or silver film,

applying said slurry solution to said copper or silver film to form said soft layer, and removing said soft layer using a polishing pad, wherein a selectivity of said CMP process is at least 100 for removal of said copper or silver film relative to a silicon dioxide, alumina or low K dielectric layer.

40. (Withdrawn) A method for chemical mechanical polishing (CMP) a copper or silver containing film, comprising the steps of:

etching a surface layer comprising a copper or silver oxide;

initiating a CMP process following said etching step, said CMP process comprising: providing a slurry, said slurry providing at least one reagent for reacting with said copper or silver film to form a soft layer on a surface of said copper or silver film, said soft layer having a hardness less than said copper or silver film, said slurry consisting of either no particles or particles which are softer than said copper or silver film,

applying said slurry solution to said copper or silver film to form said soft layer, and removing said soft layer using a polishing pad.

41. (Withdrawn) The method of claim 40, wherein said etching step includes at least one etchant selected from the group consisting of nitric acid, acetic acid, sulfuric acid, hydrochloric acid, hydrofluoric acid, hydroxy acid, carboxylic acid, citric acid, malic acid, malonic acid, succinic acid, phtalic acid, tartaric acid, dihydroxysuccinic acid, lactic acid, malic acid, fumaric acid, adipic acid, glutaric acid, oxalic acid, benzoic acid, propionic acid butyric acid, EDTA and valeric acid.

42. (Withdrawn) The method of claim 40, wherein a selectivity of said CMP process is at least 100 for removal of said copper or silver film relative to a silicon dioxide, alumina or low K dielectric layer.

43. (Withdrawn) A method for chemical mechanical polishing (CMP) a copper or silver containing film, comprising the steps of:

providing a slurry, said slurry including at least one reagent for reacting with said copper or silver film to form a soft layer on a surface of said copper or silver film, said soft layer having a hardness less than said copper or silver film, said slurry comprising a plurality of abrasive particles, said plurality of abrasive particles being harder than said copper or silver film, the concentration of said particles being no more than 1% by weight of said slurry,

applying said slurry solution to said copper or silver film to form said soft layer, and removing said soft layer using a polishing pad.

It is believed that no fee is due; however, should any fees be required for any reason relating to the enclosed materials, the Commissioner is authorized to deduct said fees from Deposit Account No. 50-0951.

Respectfully submitted,

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Gregory A. Nelson, Reg. No. 30,577
Neil R. Jetter, Reg. No. 46,803
222 Lakeview Avenue, Suite 400
West Palm Beach, FL 33401
Tel: 561-653-5000